Application No.: 10/625,586
Docket No.: KB4615 US NA

Amendment to the Claims

Please amend the Claims as follows. This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1 (Currently Amended).   A penetration resistant [life protection] article, comprising:

a plurality of flexible layers having an areal density of 0.5 to 6.0 kilograms per square meter, each of the layers made of woven fabric;

the woven fabric having a fabric tightness factor of 0.75 to 1.15 and made from yarns and without matrix resin impregnating the fabric;

the yarns having a linear density of 500 dtex or less, a tenacity of 3 to 16 grams per dtex, and an energy to break of 8 to less than 30 Joules per gram, the yarns further comprising staple fibers; and

the staple fibers having a linear density of 0.2 to 7.0 dtex per fiber.

2 (Original).   The penetration resistant article of Claim 1, wherein the staple fibers have (a) substantially uniform length, (b) variable length, or (c) subsets of the staple fibers having substantially uniform length and the staple fibers in the other subset(s) having different lengths, with the staple fibers in the subsets mixed together forming a substantially uniform distribution.

3 (Original).   The penetration resistant article of Claim 1, wherein the yarns are twisted, or the staple fibers are intermingled, or both.

4 (Original).   The penetration resistant article of Claim 1, wherein the yarns have a twist level no more than a 5 twist multiplier.

5 (Original).   The penetration resistant article of Claim 4, wherein the yarns are comprised of a plurality of yarns plied and twisted together.

6 (Original).   The penetration resistant article of Claim 1, wherein the yarns have an energy to break of 10 to 25 Joules per gram.

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7 (Original).   The penetration resistant article of Claim 1, wherein the yarns have a tenacity of 5 to 16 grams per dtex.

8 (Original).   The penetration resistant article of Claim 1, wherein the staple fibers have a crimp frequency of no more than 8 crimps per centimeter.

9 (Original).   The penetration resistant article of Claim 1, wherein the staple fibers are selected from the group consisting of polyamide fibers, polyolefin fibers, polybenzoxazole fibers, polybenzothiazole fibers, poly{2,6-diimidazo[4,5-b4',5'-e]pyridinylene-1,4(2,5-dihydroxy)phenylene} fibers, and mixtures thereof.

10 (Original). The penetration resistant article of Claim 9, wherein the staple fibers comprise aramid fibers.

11 (Original). The penetration resistant article of Claim 10, wherein the staple fibers comprise poly(paraphenylene terephthalamide).

12 (Original). The penetration resistant article of Claim 1, wherein the staple fibers have a linear density of 0.4 to 5.0 dtex per fiber.

13 (Original). The penetration resistant article of Claim 1, wherein the layers, combined, have an areal density of 1.0 to 5.0 kilograms per square meter.

14 (Original). The penetration resistant article of Claim 1, wherein the article meets at least the Level 1 performance requirement against spike as described in NIJ Standard-0115.00.

15 (Original). The penetration resistant article of Claim 1, further comprising:
    a second plurality of layers resistant to ballistic projectiles.

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16 (Original). The penetration resistant article of Claim 15, wherein the article meets at least the Type IIA ballistic performance requirement as described in NIJ Standard-0101.04.

17 (Original). The penetration resistant article of Claim 1, wherein the woven fabric has a fabric tightness factor of 0.85 to 1.1.

18 (Original). The penetration resistant article of Claim 1, wherein the fabric additionally comprises continuous multifilament yarn.

19 (Original). The penetration resistant article of Claim 1, further comprising at least one layer of woven fabric made of yarn including continuous multifilaments, such fabric having a fabric tightness factor of at least 0.75 and such yarn having a linear density of less than 500 dtex.

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